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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,235	09/25/2003	Gabriel M. Serban	14233.11US01	8710
23552	7590	12/17/2004	EXAMINER	
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			LE, HOANGANH T	
			ART UNIT	PAPER NUMBER
			2821	
DATE MAILED: 12/17/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/672,235

Applicant(s)

SERBAN ET AL

Examiner

HoangAnh T Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 16 and 17 is/are rejected.
- 7) ☒ Claim(s) 3-15 and 18-30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/17/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

### DETAILED ACTION

1. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Eckert et al. (the US Patent No. 6,155,112).

The Eckert et al reference teaches in figure 1 an antenna assembly suitable for use in a level measurement device for measuring the level of a material in a container, the antenna assembly comprising: a rod antenna 72 having a lower end and an upper end; a coupling sleeve 2 defining a tubular passage and including a coupling mechanism 2 for coupling with the container 3, the coupling sleeve being coupled to the upper end of the rod antenna such that the upper end of the rod antenna closes one end of the tubular passage, and a transition structure extending longitudinally into the tubular passage, the transition structure including (i) a waveguide 8 for directing electromagnetic energy into the rod antenna, the waveguide having a top end short-circuited by a rear wall 11, (ii) a dielectric material 71 filling the interior of the waveguide 8, the dielectric material 71 having a bottom end located proximate the upper end of the

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rod antenna and a top end abutting the rear wall 11, and (iii) an excitation element 5 projecting through the waveguide into the dielectric material for converting electrical energy into electromagnetic wave energy.

4. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Wien et al (the US Patent No. 6,202,485).

The Wien et al reference teaches in figures 1 and 2 an antenna assembly suitable for use in a level measurement device for measuring the level of a material in a container, the antenna assembly comprising: a rod antenna 4 having a lower end and an upper end; a coupling sleeve 11 defining a tubular passage and including a coupling mechanism 11 for coupling with the container, the coupling sleeve being coupled to the upper end of the rod antenna such that the upper end of the rod antenna closes one end of the tubular passage, and a transition structure extending longitudinally into the tubular passage, the transition structure including (i) a waveguide 13 for directing electromagnetic energy into the rod antenna, the waveguide having a top end short-circuited by a rear wall 2, (ii) a dielectric material 3 filling the interior of the waveguide 13, the dielectric material 3 having a bottom end located proximate the upper end of the rod antenna and a top end abutting the rear wall, and (iii) an excitation element 5 projecting through the waveguide into the dielectric material for converting electrical energy into electromagnetic wave energy. The dielectric material has a longitudinal axis and wherein the dielectric material has a coaxial bore 7 extending longitudinally from the top end into the dielectric material and terminating in a distal end (figure 2).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGregor (the US patent No. 6,825,798) in view of Wien et al (the US Patent No. 6,202,485).

The McGregor reference teaches in figure 1 a level measurement system for measuring the level of a material in a container, comprising: a controller 18 having a receiver component and a transmitter component, and a transducer for emitting electromagnetic energy and coupling reflected electromagnetic energy, the transducer having an input port operatively coupled to the transmitter component and being responsive to the transmitter component for emitting the electromagnetic energy, and having an output port operatively coupled to the receiver component for outputting reflected electromagnetic energy coupled by the transducer, the receiver component converting the reflected electromagnetic energy into corresponding electrical signals, the controller including a program component for determining the distance travelled by the electromagnetic energy, the transducer including an antenna assembly, including, (a) a rod antenna 16 having a lower end and an upper end; (b) a coupling sleeve defining a tubular passage 104 and including a coupling mechanism for coupling with the container, the coupling sleeve being coupled to the upper end of the rod antenna

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such that the upper end of the rod antenna closes one end of the tubular passage, and (c) a transition structure 14 extending into the tubular passage. McGregor does not teaches the transition structure including (i) a waveguide for directing electromagnetic energy into the rod antenna, the waveguide having a top end shod-circuited by a rear wall, (ii) a dielectric material filling the interior of the waveguide, the dielectric material having a bottom end located proximate the upper end of the rod antenna and a top end abutting the rear wall, and (iii) an excitation element projecting through the waveguide into the dielectric material for converting electrical energy into electromagnetic wave energy; and the dielectric material having a coaxial bore.

The Wein et al reference teaches in figures 1 and 2 a transition structure including (i) a waveguide 13 for directing electromagnetic energy into the rod antenna, the waveguide having a top end short-circuited by a rear wall 2, (ii) a dielectric material 3 filling the interior of the waveguide 13, the dielectric material 3 having a bottom end located proximate the upper end of the rod antenna and a top end abutting the rear wall, and (iii) an excitation element 5 projecting through the waveguide into the dielectric material for converting electrical energy into electromagnetic wave energy. The dielectric material has a longitudinal axis and wherein the dielectric material has a coaxial bore 7 extending longitudinally from the top end into the dielectric material and terminating in a distal end (figure 2) in order to improve the bandwidth of the antenna (col. 3, lines 7-8).

Since one of ordinary skill in the art would recognize the benefit of improving the performance of the antenna, it would have been obvious to provide McGregor with a transition structure as taught by Wein et al.

***Allowable Subject Matter***

7. Claims 3-15 and 18-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

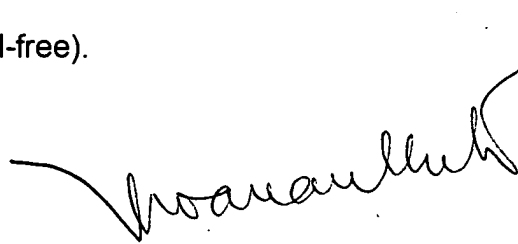
8. The following is a statement of reasons for the indication of allowable subject matter: none of the cited art discloses the coaxial bore is circular in cross-section and includes a tapered conical tip at its distal end, or the excitation element includes a coaxial cable projecting radially through the waveguide and into the dielectric material, and a metal disk connected to the centre conductor of the coaxial cable, the metal disk being located proximate the coaxial bore, or the coaxial bore includes a first circular bore proximate the top end in communication with a second circular bore distant from the top end, the first circular bore having a first diameter and the second circular bore having a second diameter, the second diameter being less than the first diameter, or a cap-shaped enclosure press-fit upon the top end of the waveguide, the cap-shaped enclosure providing the rear wall.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HoangAnh T Le whose telephone number is (571) 272-1823. The examiner can normally be reached on 8:00am-4:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Hoanganh Le', with a long, sweeping horizontal line extending to the right.

**Hoanganh Le**  
**Primary Examiner**